

~~SECRET~~
~~BY~~
~~CLASS~~
~~DRAFT~~

ECT/US 98/21141
RO/US '07 DEC 1998

1 / 21

><MW: 120922

MVFPMWTLKRQILILFNIILISKLLGARWFPKTLPCDVTLDVPKNHVIVDCTDKHLTEIP
GGIPTNTTNTLTINHIIPDISPASFHRLDHLVEIDFRCNCVPIPLGSKNNMCIKRLQIKP
RSFSGLTYLKSLYLDGNQLLEIPQGLPPSLQLLSLEANNIFSIRKENLTELANIEILYL
QNCYYRNP CYVSYSIEKDAFLNLTKLKVLSLKDNNVTAVPTVLPSTLTELYLYNNMIAKI
QEDDFNNLNQLQILDLSGNCPRCYNAPFPCAPCKNNSPLQIPVNAFDALTELKVLRLHSN
SLQHVPPRWFKNINKLQELDLSQNFLAKEIGDAKFLHFLPSLIQLDLSFNFELQVYRASM
NLSQAFSSLKSLKILRIRGYVFKELKSFNLSPLHNLQNLVLDLGTNFIKIANLSMFKQF
KRLKVIDLSVNKISPSGDSSEVGFCNSARTSVESYEPQVLEQLHYFRYDKYARSCRFKNK
EASFMSVNESCYKYGQTLDSLKNSIFFVKSSDFQHLSFLKCLNLSGNLISQTLNGSEFQP
LAELRYLD FSNRLDLLHSTAFEELHKLEVLDISSNSHYFQSEGITHMLNFTKNLKVLOK
LMMNDNDISSSTSRTESESLRTLEFRGNHLDVLWREGDNRYLQLFKNLLKLEELDISKN
SLSFLPSGVFDGMPPNLKNLSLAKNGLKSFWSKKLQCLKNLETDLDSHNQLTTVPERLSN
CSRSLKNLILKNNQIRSLTKYFLQDAFQLRYLDLSSNKIQMIQKTSFPENVLNNLKMLLL
HHNRFLCTCDAVWFVWVWNHTEVTIPYLATDVTCVGPGAHKGQSVISLDLYTCELDLTNL
ILFSLSISVSLFLMVMMTASHLYFWDVWYIYHFCKAKIKGYQRLISPDCCYDAFIVYDTK
DPAVTEWVLAELVAKLEDPREKHFNLCLEERDWLPGQPVLNLSQSIQLSKKTVFVMTDK
YAKTENFKIAFYLSHQRLMDEKVDVILIFLEKPFQKSKFLQLRKRLCGSSVLEWPTNPQ
AHPYFWQCLKNALATDNHVAYSQVFKETV

FIG. 1

4 / 21

MENMFLQSSMLTCIFLLISGSCELCAEENFSRSPCDEKKQNDSVIAECSNRRLQEVPT
VGKYVTELDLSDNFITHITNESFQGLQNLTKINLNHNPNVQHONGNPGIQSNGLNITDGA
FLNLKNLRELLLEDNQLPQIPSGLPESLTELSLIQNNIYNITKEGISRLINLKNLYLAWN
CYFNKVCEKTNIEDGVFETLTNLELLSLSFNSLSHVPPKLPSSLRKLFLSNTQIKYISEE
DFKGLINLTLLDLSGNCPRCFNAPFPCVPCDGGASINIDRFAFQNLTLRLYNLSSTSLR
KINAAWFKNMPHLKVLDLEFNVLVGEIVSGAFLTMLPRLEILDLSFNYIKGSYPQHINIS
RNFSKLLSLRALHLRGYVFQELREDDFQPLMQLPNLSTINLGINFIKQIDFKLFQNFNL
EIIYLSNRISPLVKDTRQSYANSSSFQRHIRKRRSTDFEFDPHSNFYHFTRPLIKPQCA
AYGKALDLSLNSIFFIGPNQFENLPDIACLNLSANSNAQVLSGTEFSAIPHVKYLDLTNN
RLDFDNASALTELSDEVLDSLNSHYFRIAGVTHHLEFIQNFTNLKVLNLSHNNIYTLT
DKYNLESKSLVELVFSGNRLDILWNDDDNRYISIFKGLKNLTRLDSLNLRLKHIPNEAFL
NLPASLTELHINDNMLKFFNWTLLQQFPRLELLDLRGNKLLFLTDSLSDFTSSLRTLLLS
HNRISHLPSGFLSEVSSLKHLDDLSSNLLKTINKSALETKTSTTKLSMLELHGNPFECTCDI
GDFRRWMDEHLNVKIPRLVDVICASPGDQRGKSIVSLELTTCVSDVTAVILFFFTFFITT
MVMLAALAHHLFYWDVWFIYNVCLAKVKGYRSLSTSQTIFYDAYISYDTKDASVTDWVINE
LRYHLEESRDKNVLLCLEERDWDPLAIIDNLMQSINQSKKTVFVLTKKYAKSWNFKTAF
YLALQRLMDENMDVIIIFILLEPVLQHSQYLRLRQRICKSSILQWPDNPKAEGLEFWQTLRN
VVLTENDSRYNMYVDSIKQY

<1041 residues, 0 stop; molecular weight: 119856.26

FIG. 3

8 / 21

BEST AVAILABLE COPY

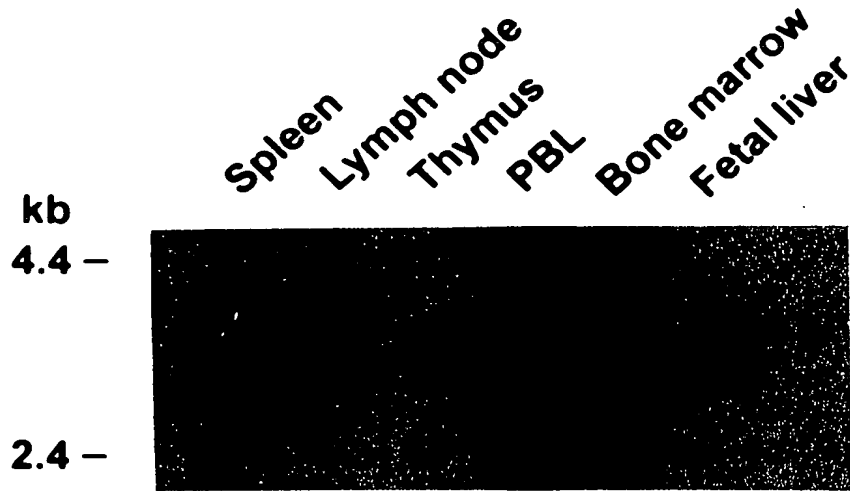


FIG. 5A

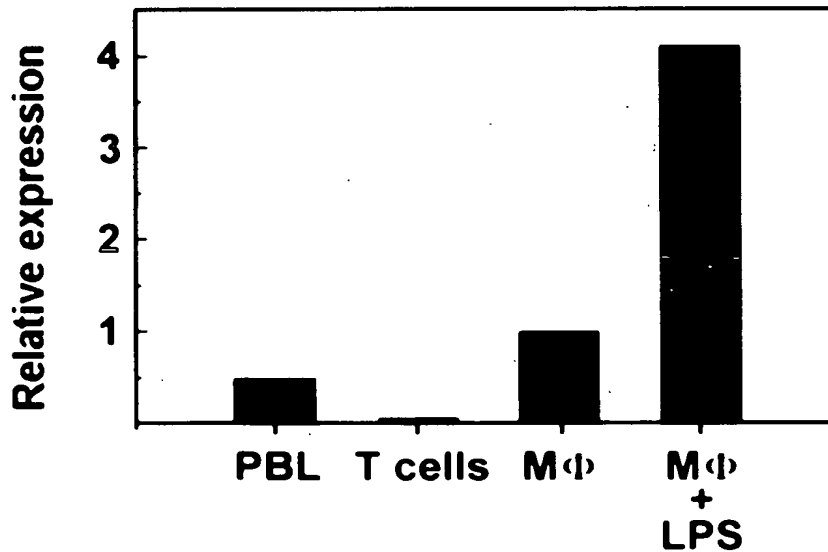


FIG. 5B

9/21

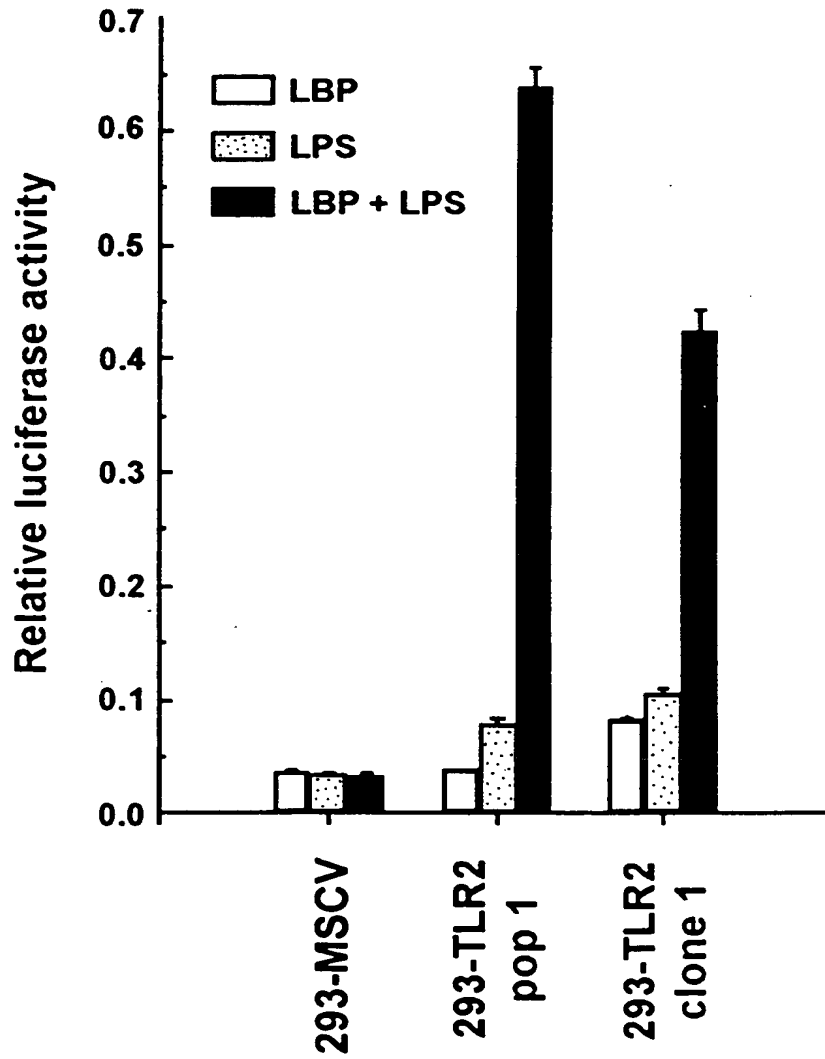


FIG. 6A

10/21



— 105 kDa

FIG. 6B

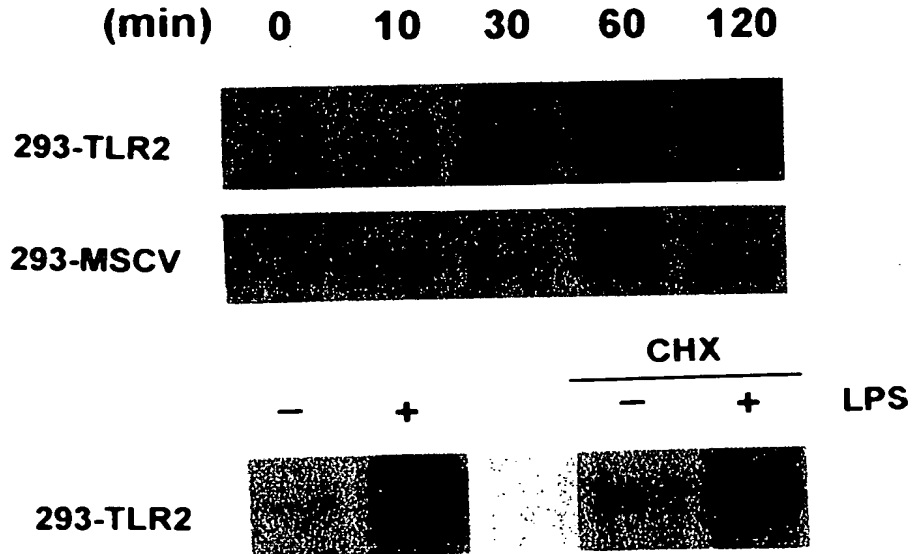


FIG. 6C

11 / 21

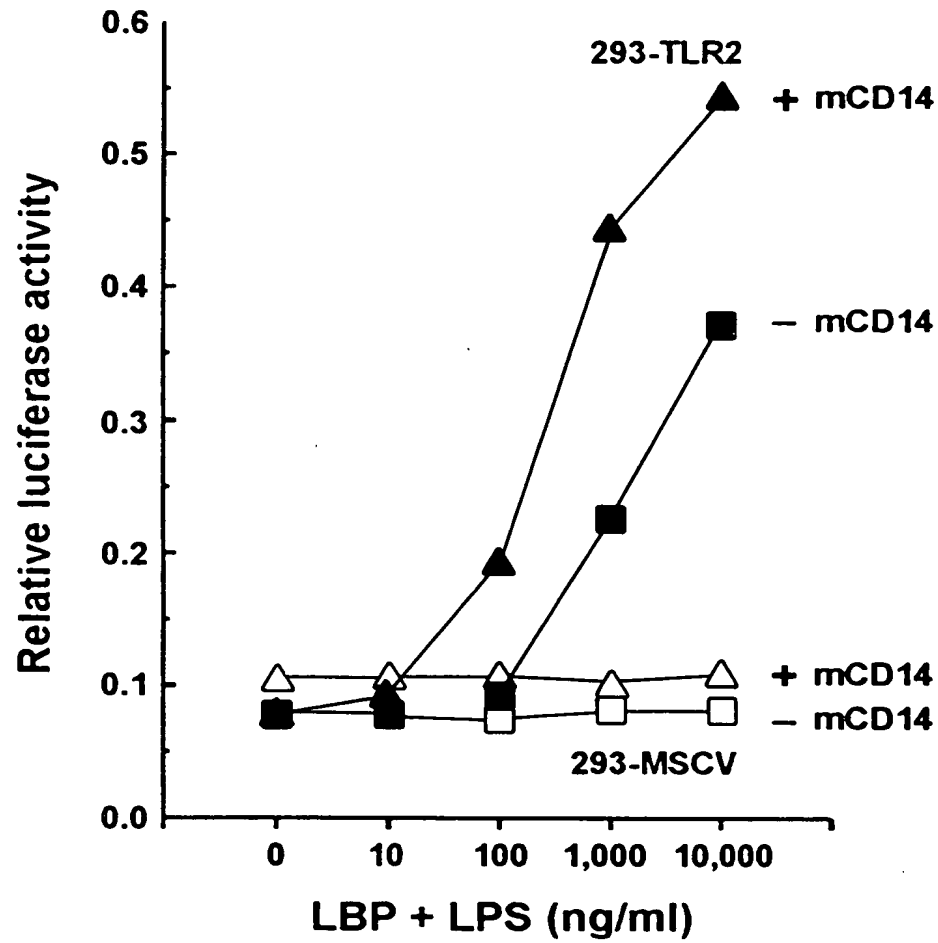


FIG. 6D

13/21

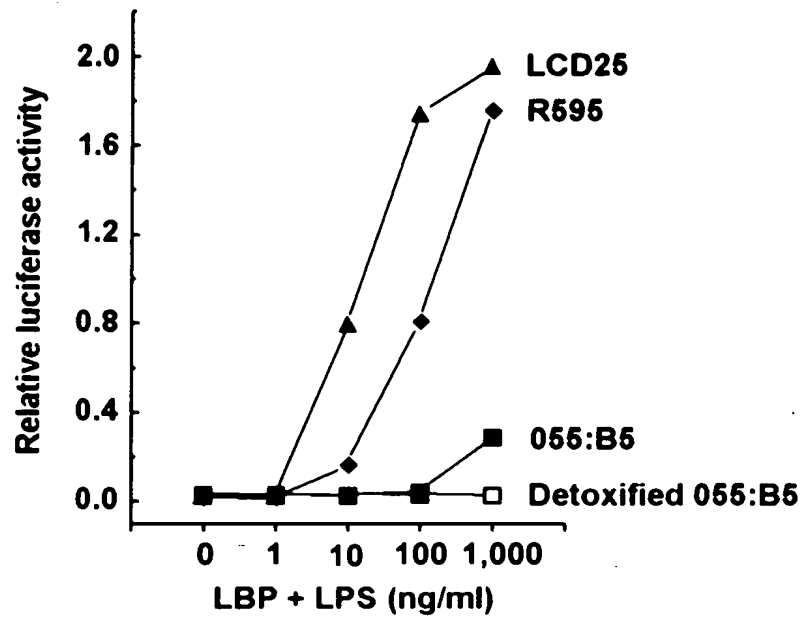


FIG. 8A

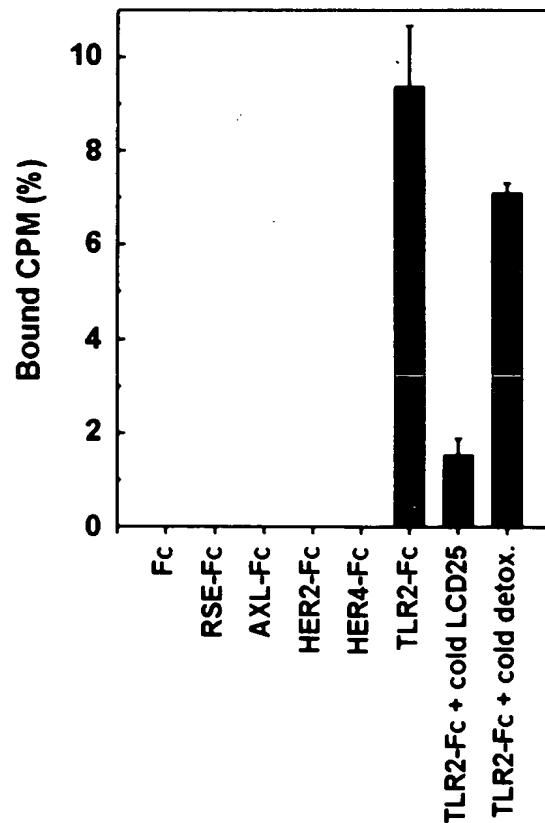


FIG. 8B

14 / 21

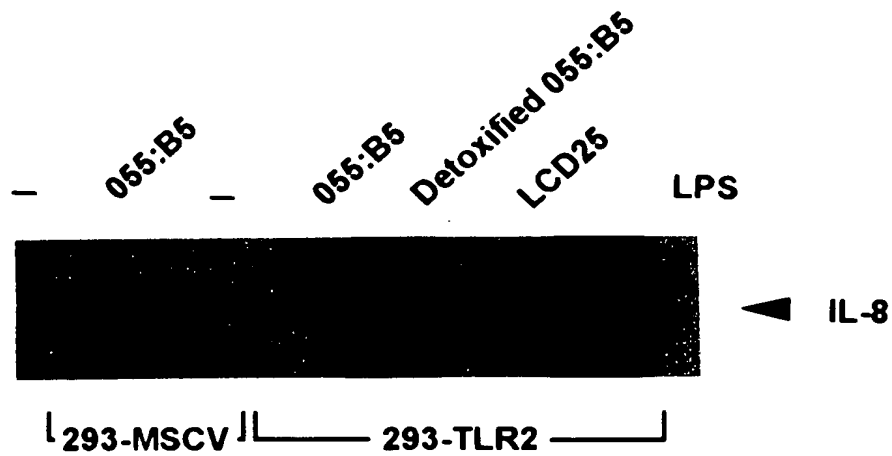


FIG. 9

15 / 21

GTTATGCCTAGAAAACATTTCTCAAGAATTAGAATTACGATATGCTGTCAAACACAATGA
CTTATTTGAACCTCTTTTATTTGTAGGTTGAAGCACTGGACAATGCCACATACTTTGTGG
ATGGTGTGGGTCTTGGGGGTCATCATCAGCCTCTCCAAGGAAGAATCCTCCAATCAGGCT
TCTCTGTCTTGTGACCGCAATGGTATCTGCAAGGGCAGCTCAGGATCTTTAAACTCCATT
CCCTCAGGGCTCACAGAAGCTGTAAAAAGCCTTGACCTGTCCAACAACAGGATCACCTAC
ATTAGCAACAGTGACCTACAGAGGTGTGTGAACCTCCAGGCTCTGGTGTGACATCCAAT
GGAATTAACACAATAGAGGAAGATTCTTTTTCTTCCCTGGGCAGTCTTGAACATTTAGAC
TTATCCTATAATTACTTATCTAATTTATCGTCTTCCCTGGTTCAAGCCCCTTTCTTCTTTA
ACATTCTTAACTTACTGGGAAATCCTTACAAAACCCCTAGGGGAAACATCTCTTTTTTCT
CATCTCACAAAATTGCAAATCCTGAGAGTGGGAAATATGGACACCTTCACTAAGATTCAA
AGAAAAGATTTTGCTGGACTTACCTTCCCTTGAGGAACCTTGAGATTGATGCTTCAGATCTA
CAGAGCTATGAGCCAAAAAGTTTGAAGTCAATTCAGAATGTAAGTCATCTGATCCTTCAT
ATGAAGCAGCATATTTTACTGCTGGAGATTTTGTAGATGTTACAAGTTCGGTGGAATGT
TTGGAAGTGGGAGATACTGATTTGGACACTTTCATTTTTTTCAGAACTATCCACTGGTGAA
ACAAATTCATTGATTAAAAAGTTTACATTTAGAAATGTGAAAATCACCGATGAAAGTTTG
TTTCAGGTTATGAACTTTTGAATCAGATTTCTGGATTGTTAGAATTAGAGTTTGATGAC
TGTACCCTTAATGGAGTTGGTAATTTTAGAGCATCTGATAATGACAGAGTTATAGATCCA
GGTAAAGTGGAAACGTTAACAATCCGGAGGCTGCATATTCCAAGGTTTTACTTATTTTAT
GATCTGAGCACTTTATATTCATTACAGAAAGAGTTAAAAGAATCACAGTAGAAAACAGT
AAAGTTTTTCTGGTTCCTTGTTTACTTTCACAACATTTAAAATCATTAGAATACTTGGAT
CTCAGTGAAAATTTGATGGTTGAAGAATACTTGAAAAATTCAGCCTGTGAGGATGCCTGG
CCCTCTCTACAACTTTAATTTTAAAGGCAAAATCATTGTCATCATTGGAAAAAACCGGA
GAGACTTTGCTCACTCTGAAAACTTGACTAACATTGATATCAGTAAGAATAGTTTTTCAT
TCTATGCCTGAACTTGTGAGTGGCCAGAAAAGATGAAATATTTGAACTTATCCAGCACA
CGAATACACAGTGTAACAGGCTGCATTCCCAAGACACTGGAAATTTTAGATGTTAGCAAC
AACAAATCTCAATTTATTTTCTTTGAATTTGCCGCAACTCAAAGAACTTTATATTTCCAGA
AATAAGTTGATGACTCTACCAGATGCCTCCCTCTTACCCATGTTACTAGTATTGAAAATC
AGTAGGAATGCAATAACTACGTTTTCTAAGGAGCAACTTGACTCATTTCACACACTGAAG
ACTTTGGAAGCTGGTGGCAATAACTTCATTTGCTCCTGTGAATTCCTCTCCTTCACTCAG
GAGCAGCAAGCACTGGCCAAAGTCTTGATTGATTGGCCAGCAAATTACCTGTGTGACTCT
CCATCCCATGTGCGTGCCAGCAGGTTTCAAGATGTCCGCCTCTCGGTGTGCGGAATGTCAC
AGGACAGCACTGGTGTCTGGCATGTGCTGTGCTCTGTTCCCTGCTGATCCTGCTCACGGGG
GTCCTGTGCCACCGTTTCCATGGCCTGTGGTATATGAAAATGATGTGGGCCTGGCTCCAG
GCCAAAAGGAAGCCCAGGAAAGCTCCCAGCAGGAACATCTGCTATGATGCATTTGTTTCT
TACAGTGAGCGGGATGCCTACTGGGTGGAGAACCTTATGGTCCAGGAGCTGGAGAACTTC
AATCCCCCTTCAAGTTGTGTCTTCATAAGCGGGACTTCATTCCCTGGCAAGTGGATCATT
GACAATATCATTGACTCCATTGAAAAGAGCCACAAAACGTCTTTGTGCTTTTCTGAAAAC
TTTGTGAAGAGTGAGTGGTGCAAGTATGAACTGGACTTCTCCCATTTCCGTCTTTTTTGAT
GAGAACAAATGATGCTGCCATTCTCATTCTTCTGGAGCCCATTGAGAAAAAAGCCATTCCC
CAGCGCTTCTGCAAGCTGCGGAAGATAATGAACACCAAGACCTACCTGGAGTGGCCCATG
GACGAGGCTCAGCGGGAAGGATTTTGGGTAAATCTGAGAGCTGCGATAAAGTCCTAGGTT
CCCATATTTAAGACCAGTCTTTGTCTAGTTGGGATCTTTATGTCAGTATTAGTTAAG
TTCATTGAGACATAATTATATAAAAACCTACGTGGATGTACCGTCATTTGAGGACTTGCTT
ACTAAAACCTACAAAACCTTCAA

FIG. 10

16/21

MPHTLWMVWVLGVIIISLSKEESSNQASLSCDRNGICKGSSGSLNSIPSGLTEAVKSLDL
SNNRITYISNSDLQRCVNLQALVLTNGINTIEEDSFSSLGSLEHLDSLNYLSNLSSS
WFKPLSSLTFLNLLGNPYKTLGETSLFSLTKLQILRVGNMDTFTKIQRKDFAGLTFLE
ELEIDASDLQSYEPKSLKSIQNVSHLILHMKQHILLEIFVDVTSSVECLELRDLDLT
FHFSELSTGETNSLIKKFTFRNVKITDESLEFQVMKLLNQISGLLELEFDDCTLNGVGNF
RASDNRVIDPGKVETLTIRRLHIPRFYLFYDLSTLYSLTERVKRITVENSKVFLVPCL
LSQHLKSLEYLDLSENLMVEEYLKNSACEDAWPSLQTLILRQNHLASLEKTGETLLTLK
NLTNIDISKNSFHSMPCQWPEKMKYLNLSSTRIHSVTGCI PKTLEILDVSNNNLNLF
SLNLPQLKELYISRNKMLTLPDASLLPMLLVLKISRNAITTF SKEQLDSFHTLKTLEAG
GNNFICSCFLSFTQEQQALAKVLIDWPANYLCDSPSHVRGQQVDVRLSVSECHRTAL
VSGMCCALFLLILLTGVLCHRFHGLWYMKMMWAWLQAKRKPRKAPSRNICYDAFVSYSE
RDAYWVENLMVQELENFNPPFKLCLHKRDFIPGKWIIDNIIDSIEKSHKTVFVLSNFV
KSEWCKYELDFSHFRLFDENNDAAAILILLEPIEKKAIPQRFCKLRKIMNTKTYLEWPMD
EAQREGFWVNLRAAIKS

FIG. 11

(SEQ ID NO: 2)

GAATCATCCA CGCACCTGCA GCTCTGCTGA GAGAGTGCAA GCCGTGGGG TTTTGAGCTC ATCTTCATCA TTCATATGAG GAAATAAGTG GTAAATCCT 100

TTGAAATACA ATGAGACTCA TCAGAAACAT TTACATATTT TGTAGTATTG TTATGACAGC AGAGGGTGAT GCTCCAGAGC TGCCAGAAGA AAGGGAAGTG 200

ATGACCAACT GCTCCAACAT GTCTCTAAGA AAGGTTCCCG CAGACTTGAC CCCAGCCACA ACACACTGG ATTTATCCTA TAACCTCCTT TTTCAACTCC 300

AGAGTTTCAGA TTTTCATTCT GTCTCCAAAC TGAGAGTTT GATTCTATGC CATAACAGAA TTCAACAGCT GGATCTCAA ACCTTTGAAT TCAACAAGGA 400

GTAAAGATAT TTAGATTGT CTAATAACAG ACTGAAGAGT GTAACTTGGT ATTTACTGGC AGGTCTCAGG TATTTAGATC TTTCTTTTAA TGACTTTGAC 500

ACCATGCCTA TCTGTGAGGA AGCTGGCAAC ATGTCACACC TGGAAATCCT AGGTTTGAGT GGGGCAAAA TACAAAAATC AGATTTCCAG AAAATTGCTC 600

ATCTGCATCT AAATACTGTC TTCTTAGGAT TCAGAACTCT TCCTCATTAT GAAGAAGGTA GCCTGCCCAT CTTAAACACA ACAAACTGC ACATTGTTTT 700

ACCAATGGAC ACAAAATTCT GGGTTCTTT GCGTGATGGA ATCAAGACTT CAAAAATATT AGAAATGACA AATATAGATG GCAAAAGCCA ATTTGTAAGT 800

TATGAAATGC AACGAAATCT TAGTTTAGAA AATGCTAAGA CATCGTTCT ATTGCTTAAT AAAGTTGATT TACTCTGGGA CGACCTTTTC CTTATCTTAC 900

AATTGTTTG GCATACATCA GTGGAACACT TTCAGATCCG AAATGTGACT TTTGGTGGTA AGGCTTATCT TGACCACAAT TCATTTGACT ACTCAAATAC 1000

TGTAATGAGA ACTATAAAAT TGGAGCATGT ACATTTTACA GTGTTTACA TTCAACAGGA TAAATCTAT TTGCTTTTGA CCAAAATGGA CATAGAAAAC 1100

CTGACAATAT CAAATGCACA AATGCCACAC ATGCTTTTCC CGAATTATCC TACGAAATTC CAATATTAA ATTTTGCCAA TAATATCTTA ACAGACGAGT 1200

TGTTTAAAG AACTATCCAA CTGCCTCACT TGAAAACCTCT CATTTTGAAT GGCAATAAAC TGGAGACACT TTCTTTAGTA AGTTGCTTTG CTAACAACAC 1300

ACCCTTGGAA CACTTGGATC TGAGTCAAAA TCTATTACAA CATAAAAATG ATGAAAATTG CTCATGGCCA GAAACTGTGG TCAATATGAA TCTGTCTATC 1400

AATAAATTGT CTGATTCTGT CTTCAGGTGC TTGCCCAAAA GTATTCAAAT ACTTGACCTA AATAATAACC AAATCCAAAC TGTACCTAAA GAGACTATTTC 1500

ATCTGATGGC CTTACGAGAA CTAAATATTG CATTTAATTT TCTAACTGAT CTCCTGGAT GCAGTCATT CAGTAGACTT TCAGTTCTGA ACATTGAAAT 1600

GAACTTCATT CTCAGCCCCAT CTCTGGATT TGTTTCAGAGC TGCCAGGAAG TTAAAACTCT AAATGCGGGA AGAAATCCAT TCCGGGTGAC CTGTGAATTA 1700

AAAAATTTC TACAGCTTGA AACATATTCA GAGGTCATGA TGGTTGGATG GTACCTGTG TACACCTGTG AATACCCTTT AAACCTAAGG GGAACCTAGGT 1800

FIG. 13A

20/20

TAAAGACGT TCATCTCCAC GAATTATCTT GCAACACAGC TCTGTTGATT GTCACCAATTG TGGTTATTAT GCTAGTTCTG GGGTTGGCTG TGGCCTTCTG 1900
CTGTCTCCAC TTTGATCTGC CCTGGTATCT CAGGATGCTA GGTCAATGCA CACAAACATG GCACAGGGTT AGGAAAACAA CCCAAGAACA ACTCAAGAGA 2000
AATGTCGGAT TCCACGCCAT TATTTATAC AGTGAACATG ATTCTCTGTG GGTGAAGAAT GAATTGATCC CCAATCTAGA GAAGGAAGAT GGTCTCTATCT 2100
TGATTTGCCT TTATGAAAGC TACTTTGACC CTGGCAAAAG CATTAGTGAA AATATTGTAA GCTTCATTGA GAAAAGCTAT AAGTCCATCT TTGTTTGTGTC 2200
TCCCAACTTT GTCCAGAATG AGTGGTGCCA TTATGAATTC TACTTTGCCC ACCACAATCT CTTCCATGAA AATTCTGATC ATATAATTCT TATCTTACTG 2300
GAACCCATTC CATTCATTTG CATTTCCACC AGGTATCATA AACTGAAAGC TCTCCTGGAA AAAAAAGCAT ACTTGGAAAT GCCCAAGGAT AGGCGTAAAT 2400
GTGGGCTTTT CTGGGCAAAAC CTTGAGCTG CTATTAAATG TAATGATTA GCCACCAGAG AAATGTATGA ACTGCAGACA TTCACAGAGT TAAATGAAGA 2500
GTCTCGAGGT TCTACAATCT CTCTGATGAG AACAGATTGT CTA TAA AATC CCACAGTCTT TGGGAAGTTG GGGACCACAT ACACGTGTTG GATGTACATT 2600
GATACAACCT TTATGATGC AATTGACAA TATTTATTAA AATAAAAAAT GGTATTTCCT TTATATCAG TTTCTAGAAG GATTTCTAAG AATGTATCCT 2700
ATAGAAACAC CTTCAACAAGT TTATAAGGC TTATGGAAGA AGGTGTTCTAT CCCAGGATTG TTTATAATCA TGAANAATGT GGCCAGGTGC AGTGGCTCAC 2800
TCTTTGTAATC CCAGCACTAT GGGAGGCCAA GGTGGGTGAC CCACGAGGTC AAGAGATGGA GACCATCCTG GCCAACATGG TGAAACCCCTG TCTCTACTAA 2900
AAATACAAAA ATTAGCTGGG CGTGATGGTG CAGGCCTGTA GTCCCAGCTA CTTGGGAGGC TGAGGCAGGA GAATCGCTTG AACCCGGGAG GTGGCAGTTG 3000
CAGTGAGCTG AGATCGAGCC ACTGCACTCC AGCCTGGTGA CAGAGCGAGA CTCCATCTCA AAAAAAAGAA AAAAAAATG GAAAAACATCC 3100
TCATGGCCAC AAAATAAGGT CTAATTCAAT AAATTATAGT ACATTAAATG AATATAATAT TACATGCCAC TAAAAAGAAT AAGGTAGCTG TATATTTCCT 3200
GGTATGGAAA AAACATATTA ATATGTTATA AACTATTAGG TTGGTGCAA ACTAATTGTG GTTTTGTCCA TTGAAATGGC ATTGAAATAA AAGTGTAAAG 3300
AAATCTATAC CAGATGTAGT AACAGTGGT TGGGTCTGGG AGGTTGGATT ACAGGGAGCA TTTGATTCT ATGTTGTGTA TTTCTATAAT GTTTGAATTG 3400
TTTAGAATGA ATCTGTATTT CTTTATAAG TAGAAAAAAA ATAAAGATAG TTTTACAGC CT 3462

FIG. 13B